

## **WHAT IS CLAIMED IS**

1. An image processing method for generating a single image group file from a plurality of still images, comprising:

setting an output sequence of the plurality of still images; and

adding data indicating a storage location of each of the still images according to the set output sequence, to a header portion of the file.

2. The image processing method as claimed in claim 1, further comprising:

generating compressed coded data of the plurality of still images,

wherein adding the data comprises:

setting thumbnail information of each of the still images in one or a plurality of formats; and

adding the thumbnail information with the set format in the header portion when forming the coded data of each of the still images.

3. The image processing method as claimed in claim 1, wherein the setting the output sequence sets the output sequence with respect to still images having same picture taking conditions, of the plurality of still images.

4. The image processing method as claimed in claim 1, wherein the setting the output sequence sets a display interval of each of the still images together with the output sequence that is set as a display sequence.

5. The image processing method as claimed in claim 2, wherein the thumbnail information includes resolution information of the still images.

6. The image processing method as claimed in claim 5, wherein the resolution information includes decomposition level information of the still images.

7. The image processing method as claimed in claim 5, wherein the thumbnail information includes position information of the still images.

8. The image processing method as claimed in claim 7, wherein the position information includes at least one of tile information, precinct information, code block information and pixel position information.

9. The image processing method as claimed in claim 5, wherein the thumbnail information includes component information of the still images.

10. The image processing method as claimed in claim 5, wherein the thumbnail information includes picture quality information of the still images.

11. The image processing method as claimed in claim 10, wherein the picture quality information includes layer information and/or bit-plane information.

12. The image processing method as claimed in claim 5, wherein the thumbnail information includes sub-band information of the still images.

13. An image processing apparatus for generating a single image group file from a plurality of still images, comprising:

an image sequence setting unit to set an output sequence of the plurality of still images; and

a data adding unit to add data indicating a storage location of each of the still images

according to the set output sequence, to a header portion of the file.

14. The image processing apparatus as claimed in claim 13, further comprising:  
an image compression unit to generate compressed coded data of the plurality of still  
images,

the data adding unit comprising

a thumbnail setting unit to set thumbnail information of each of the still  
images in one or a plurality of formats; and

a thumbnail information adding unit to add the thumbnail information with the  
set format in the header portion when forming the coded data of each of the still images.

15. The image processing apparatus as claimed in claim 13, wherein the image  
sequence setting unit sets the output sequence with respect to still images having same  
picture taking conditions, of the plurality of still images.

16. The image processing apparatus as claimed in claim 13, wherein the image  
sequence setting unit sets a display interval of each of the still images together with the  
output sequence that is set as a display sequence.

17. The image processing apparatus as claimed in claim 14, wherein the  
thumbnail information includes resolution information of the still images.

18. The image processing apparatus as claimed in claim 17, wherein the resolution  
information includes decomposition level information of the still images.

19. The image processing apparatus as claimed in claim 17, wherein the  
thumbnail information includes position information of the still images.

20. The image processing apparatus as claimed in claim 19, wherein the position information includes at least one of tile information, precinct information, code block information and pixel position information.

21. The image processing apparatus as claimed in claim 17, wherein the thumbnail information includes component information of the still images.

22. The image processing apparatus as claimed in claim 17, wherein the thumbnail information includes picture quality information of the still images.

23. The image processing apparatus as claimed in claim 22, wherein the picture quality information includes layer information and/or bit-plane information.

24. The image processing apparatus as claimed in claim 17, wherein the thumbnail information includes sub-band information of the still images.

25. An image expansion method for outputting a thumbnail of an image, comprising:

obtaining compressed coded data by generating a single image group file from a plurality of still images, comprising setting an output sequence of the plurality of still images, adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and generating the compressed coded data of the plurality of still images, wherein adding the data includes setting thumbnail information of each of the still images in one or a plurality of formats and adding the thumbnail information with the set format in the header portion when forming the coded data of each of the still images, the thumbnail information including resolution information of the still

images; and

expanding and outputting only a thumbnail portion of the compressed coded data, based on the thumbnail information of the compressed coded data.

26. An image expansion apparatus for outputting a thumbnail of an image, comprising:

an obtaining unit to obtain compressed coded data by generating a single image group file from a plurality of still images, wherein the obtaining unit comprises an image sequence setting unit to set an output sequence of the plurality of still images, a data adding unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and an image compression unit to generate the compressed coded data of the plurality of still images, and further wherein the data adding unit includes a thumbnail setting unit to set thumbnail information of each of the still images in one or a plurality of formats and a thumbnail information adding unit to add the thumbnail information with the set format in the header portion when forming the coded data of each of the still images, the thumbnail information including resolution information of the still images; and

an expansion and output unit to expand and output only a thumbnail portion of the compressed coded data, based on the thumbnail information of the compressed coded data.

27. An image output method for extracting a thumbnail of an image, comprising: obtaining compressed coded data by generating a single image group file from a plurality of still images, comprising setting an output sequence of the plurality of still images, adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and generating the compressed coded data of the plurality of still images, wherein adding the data includes setting thumbnail information of each of the still images in one or a plurality of formats and adding the thumbnail

information with the set format in the header portion when forming the coded data of each of the still images, the thumbnail information including resolution information of the still images; and

extracting a portion of the compressed coded data based on the thumbnail information of the compressed coded data.

28. An image output method comprising:

obtaining a single image group file from a plurality of still images, comprising setting an output sequence of the plurality of still images, and adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

outputting the plurality of still images of the file according to the output sequence.

29. An image output apparatus for extracting a thumbnail of an image, comprising:

an obtaining unit to obtain compressed coded data by generating a single image group file from a plurality of still images, wherein the obtaining unit comprises a setting unit to set an output sequence of the plurality of still images, an adding unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and a compression unit to generate the compressed coded data of the plurality of still images, and further wherein the adding unit sets thumbnail information of each of the still images in one or a plurality of formats and adding the thumbnail information with the set format in the header portion when forming the coded data of each of the still images, the thumbnail information including resolution information of the still images; and

an extracting unit to extract only a portion of the compressed coded data based on the thumbnail information of the compressed coded data.

30. An image output apparatus comprising:

an obtaining unit to obtain a single image group file from a plurality of still images, where the obtaining unit comprises a unit to set an output sequence of the plurality of still images, and a unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

an output unit to output the plurality of still images of the file according to the output sequence.

31. An image conversion method comprising:

obtaining a single image group file from a plurality of still images, wherein obtaining the single image group file comprises setting an output sequence of the plurality of still images, and adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

subjecting the file to an inverse conversion so that the file is converted into the plurality of still images and one file is formed by each of the plurality of converted still images.

32. An image conversion apparatus comprising:

an obtaining unit to obtain a single image group file from a plurality of still images, wherein the obtaining unit comprises a unit to set an output sequence of the plurality of still images, and a unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

a conversion unit to subject the file to an inverse conversion so that the file is converted into the plurality of still images and one file is formed by each of the plurality of converted still images.

33. An article of manufacture comprising one or more recordable media having

instructions stored thereon which, when executed by a computer cause the computer to generate a single image group file from a plurality of still images by:

setting an output sequence of the plurality of still images; and

adding data indicating a storage location of each of the still images according to the set output sequence, to a header portion of the file.

34. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer cause the computer to output a thumbnail of an image by:

obtaining compressed coded data by generating a single image group file from a plurality of still images, wherein obtaining compressed coded data comprises causing the computer to set an output sequence of the plurality of still images, causing the computer to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and causing the computer to generate the compressed coded data of the plurality of still images, and further wherein adding the data includes causing the computer to set thumbnail information of each of the still images in one or a plurality of formats and add the thumbnail information with the set format in the header portion when forming the coded data of each of the still images, the thumbnail information including resolution information of the still images; and

expanding and outputting only a thumbnail portion of the compressed coded data, based on the thumbnail information of the compressed coded data.

35. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to extract a thumbnail of an image by:

obtaining compressed coded data by generating a single image group file from a plurality of still images, wherein obtaining the compressed coded data comprises causing the



computer to set an output sequence of the plurality of still images, causing the computer to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and causing the computer to generate the compressed coded data of the plurality of still images, and further wherein adding the data includes causing the computer to set thumbnail information of each of the still images in one or a plurality of formats and add the thumbnail information with the set format in the header portion when forming the coded data of each of the still images, the thumbnail information including resolution information of the still images; and

extracting a portion of the compressed coded data based on the thumbnail information of the compressed coded data.

36. An article of manufacture having one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to:

obtain a single image group file from a plurality of still images, comprising causing the computer to set an output sequence of the plurality of still images, and add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

output the plurality of still images of the file according to the output sequence.

37. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to convert a file by:

obtaining a single image group file from a plurality of still images, wherein obtaining the single image group file comprises causing the computer to set an output sequence of the plurality of still images, and add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

subjecting the file to an inverse conversion so that the file is converted into the

plurality of still images and one file is formed by each of the plurality of converted still images.

38. An image processing method for generating a single dynamic image file from a plurality of still images, comprising:

setting a reproducing sequence of the plurality of still images; and

adding data indicating a storage location of each of the still images according to the set output sequence, to a header portion of the file.

39. The image processing method as claimed in claim 38, wherein setting the reproducing sequence sets a still image that is to be used as a thumbnail of a dynamic image from the plurality of still images as dynamic image thumbnail information, and where adding the data adds the dynamic image thumbnail information to the header portion of the file.

40. The image processing method as claimed in claim 38, further comprising:

generating compressed coded data of the plurality of still images,

where adding the data comprises:

setting thumbnail information of each of the still images in one or a plurality of formats; and

adding the thumbnail information with the set format in the header portion when forming the coded data of each of the still images.

41. The image processing method as claimed in claim 40, wherein the thumbnail information includes decomposition level information of the still images.

42. The image processing method as claimed in claim 41, wherein the resolution information includes a decomposition level information of the still images.

43. The image processing method as claimed in claim 40, wherein the thumbnail information includes position information of the still images.

44. The image processing method as claimed in claim 43, wherein the position information includes at least one of tile information, precinct information, code block information and pixel position information.

45. The image processing method as claimed in claim 40, wherein the thumbnail information includes component information of the still images.

46. The image processing method as claimed in claim 40, wherein the thumbnail information includes picture quality information of the still images.

47. The image processing method as claimed in claim 46, wherein the picture quality information includes layer information and/or bit-plane information.

48. The image processing method as claimed in claim 40, wherein the thumbnail information includes sub-band information of the still images.

49. An image processing apparatus for generating a single dynamic image file from a plurality of still images, comprising:

an image sequence setting unit to set a reproducing sequence of the plurality of still images; and

a data adding unit to add data indicating a storage location of each of the still images according to the set output sequence, to a header portion of the file.

50. The image processing apparatus as claimed in claim 49, wherein the image sequence setting unit sets a still image that is to be used as a thumbnail of a dynamic image from the plurality of still images as dynamic image thumbnail information, and the data adding unit adds the dynamic image thumbnail information to the header portion of the file.

51. The image processing apparatus as claimed in claim 49, further comprising:  
an image compression unit to generate compressed coded data of the plurality of still images,

wherein the data adding unit comprises:

a thumbnail setting unit to set thumbnail information of each of the still images in one or a plurality of formats; and

a thumbnail information adding unit to add the thumbnail information with the set format in the header portion when forming the coded data of each of the still images.

52. The image processing apparatus as claimed in claim 51, wherein the thumbnail information includes decomposition level information of the still images.

53. The image processing apparatus as claimed in claim 52, wherein the resolution information includes a decomposition level information of the still images.

54. The image processing apparatus as claimed in claim 51, wherein the thumbnail information includes position information of the still images.

55. The image processing apparatus as claimed in claim 54, wherein the position information includes at least one of tile information, precinct information, code block information and pixel position information.

56. The image processing apparatus as claimed in claim 51, wherein the thumbnail information includes component information of the still images.

57. The image processing apparatus as claimed in claim 51, wherein the thumbnail information includes picture quality information of the still images.

58. The image processing apparatus as claimed in claim 57, wherein the picture quality information includes layer information and/or bit-plane information.

59. The image processing apparatus as claimed in claim 51, wherein the thumbnail information includes sub-band information of the still images.

60. An image expansion method for outputting a thumbnail of an image, comprising:

obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein obtaining the series of compressed coded data comprises setting a reproducing sequence of the plurality of still images, adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and generating compressed coded data of the plurality of still images, wherein adding the data includes setting thumbnail information of each of the still images in one or a plurality of formats and adding the thumbnail information with the set format in the header portion when forming the coded data of each of the still images; and  
expanding and outputting only a thumbnail portion of the compressed coded data, based on the thumbnail information of each of the compressed coded data.

61. An image expansion apparatus for outputting a thumbnail of an image, comprising:

an obtaining unit to obtain a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein the obtaining unit comprises an image sequence setting unit to set a reproducing sequence of the plurality of still images, a data adding unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and an image compression unit to generate compressed coded data of the plurality of still images, the data adding unit including a unit to set thumbnail information of each of the still images in one or a plurality of formats and a unit to add the thumbnail information with the set format in the header portion when forming the coded data of each of the still images; and

an expansion and output unit to expand and output only a thumbnail portion of the compressed coded data, based on the thumbnail information of each of the compressed coded data.

62. An image output method for extracting a thumbnail of an image, comprising:  
obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein obtaining the series of compressed coded data comprises setting a reproducing sequence of the plurality of still images, adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and generating compressed coded data of the plurality of still images, and further wherein adding the data includes setting thumbnail information of each of the still images in one or a plurality of formats and adding the thumbnail information with the set format in the header portion when forming the coded data of each of the still images;  
and

extracting a portion of the compressed coded data based on the thumbnail information of each of the compressed coded data.

63. An image output method for outputting a file, comprising:

obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein obtaining the series of compressed coded data comprises setting a reproducing sequence of the plurality of still images and adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

outputting the file according to the reproducing sequence.

64. An image output method for outputting a dynamic image thumbnail, comprising:

obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein obtaining the series of compressed coded data comprises setting a reproducing sequence of the plurality of still images and adding data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and further wherein setting the reproducing sequence comprises setting a still image that is to be used as a thumbnail of a dynamic image from the plurality of still images as dynamic image thumbnail information, wherein adding the data comprises adding the dynamic image thumbnail information to the header portion of the file; and

outputting the dynamic image thumbnail based on the dynamic thumbnail information.

65. An image output apparatus for extracting a thumbnail of an image, comprising:

an obtaining unit to obtain a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein the obtaining unit comprises an image sequence setting unit to set a reproducing sequence of the plurality of still images, a data adding unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and an image compression unit to

generate compressed coded data of the plurality of still images, wherein the data adding unit sets thumbnail information of each of the still images in one or a plurality of formats and adding the thumbnail information with the set format in the header portion when forming the coded data of each of the still images; and

an extracting unit to extract a portion of the compressed coded data based on the thumbnail information of each of the compressed coded data.

66. An image output apparatus for outputting a file, comprising:

an obtaining unit to obtain a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein the obtaining unit comprises an image sequence setting unit to set a reproducing sequence of the plurality of still images, and a data adding unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and

an output unit to output the file according to the reproducing sequence.

67. An image output apparatus for outputting a dynamic image thumbnail, comprising:

an obtaining unit to obtain a series of compressed coded data by generating a single dynamic image file from a plurality of still images, the obtaining unit comprising an image sequence setting unit to set a reproducing sequence of the plurality of still images, and a data adding unit to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, wherein the image sequence setting unit sets a still image that is to be used as a thumbnail of a dynamic image from the plurality of still images as dynamic image thumbnail information, and further wherein the data adding unit adds the dynamic image thumbnail information to the header portion of the file; and

an output unit to output the dynamic image thumbnail based on the dynamic thumbnail information.



68. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to generate a single dynamic image file from a plurality of still images:

setting a reproducing sequence of the plurality of still images; and

adding data indicating a storage location of each of the still images according to the set output sequence, to a header portion of the file.

69. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to output a thumbnail of an image by:

obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein obtaining the series of compressed coded data comprises causing the computer to set a reproducing sequence of the plurality of still images, causing the computer to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and causing the computer to generate compressed coded data of the plurality of still images, wherein adding the data includes causing the computer to set thumbnail information of each of the still images in one or a plurality of formats and causing the computer to add the thumbnail information with the set format in the header portion when forming the coded data of each of the still images; and

expanding and outputting only a thumbnail portion of the compressed coded data, based on the thumbnail information of each of the compressed coded data.

70. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to extract a thumbnail of an image by:

obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein obtaining a series of compressed coded data

comprises causing the computer to set a reproducing sequence of the plurality of still images, causing the computer to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file, and causing the computer to generate compressed coded data of the plurality of still images, wherein adding the data includes causing the computer to set thumbnail information of each of the still images in one or a plurality of formats and causing the computer to add the thumbnail information with the set format in the header portion when forming the coded data of each of the still images; and extracting a portion of the compressed coded data based on the thumbnail information of each of the compressed coded data.

71. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to output a file by:

obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, wherein obtaining the series of compressed coded data comprises causing the computer to set a reproducing sequence of the plurality of still images and causing the computer to add data indicating a storage location of each of the still images according to the set output sequence to a header portion of the file; and outputting the file according to the reproducing sequence.

72. An article of manufacture comprising one or more recordable media having instructions stored thereon which, when executed by a computer, cause the computer to output a dynamic image thumbnail by:

obtaining a series of compressed coded data by generating a single dynamic image file from a plurality of still images, comprising causing the computer to set a reproducing sequence of the plurality of still images and causing the computer to add data indicating a storage location of each of the still images according to the set output sequence to a header

portion of the file, wherein causing the computer to set the reproducing sequence comprises causing the computer to set a still image that is to be used as a thumbnail of a dynamic image from the plurality of still images as dynamic image thumbnail information, wherein adding the data comprises causing the computer to add the dynamic image thumbnail information to the header portion of the file; and

outputting the dynamic image thumbnail based on the dynamic thumbnail information.